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Family planning programs in Asia: Approaching a half-century of effort

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This Research Report is an updated and expanded version of a lecture that Professor Tsui presented in June 1994 as part of the Distinguished Lecturer Series commemorating the Program on Population's Twenty-Fifth Summer Seminar on Population. The seminar provided an opportunity for 80 population professionals from 25 countries to share their experience, increase their knowledge, and develop plans for collaborative research.

In 1930 the first government-sponsored birth control clinic opened in Mysore State, India. Nearly two decades later, in 1949, the Family Planning Association of India began operation, marking the beginning of a worldwide family planning movement. In reviewing the emergence, establishment, and maturation of family planning programs in Asia, this report concentrates on the countries of East, South, and Southeast Asia that had developing status in 1970. The review is set against a dynamic backdrop of rapid population growth, spurred by rapidly declining mortality rates, and expanding opportunities for social and economic development.

To understand why some programs have been more successful than others, I examine the characteristics of family planning organizations: their policy environment, financial and human resources, service infrastructure, and levels of service production and consumption. In the final section I postulate how the Asian family planning programs may evolve over the next half century in response to environmentally induced change. The review offers lessons for programs under development in other parts of the world.

HISTORICAL BACKGROUND

Three major transformations in Asia's political, social, and economic conditions during the past four decades have greatly enhanced the prospects for delivering public family planning services successfully. First, in the period after World War II, political strife and reform characterized various parts of the region. Reform moved most countries toward greater stability, enabling them to achieve gains in health and in economic and social organization. Second, agricultural and economic development flourished in most Asian countries, spurred by foreign investment and the building of trade, transportation, and telecommunication systems. Third, schooling and mass communications (television, film, and radio) fostered ideational change, limiting the influence of cultural traditions and norms and supporting individualistic pursuits.

Asia's political landscape of the 1950s, often forgotten in contemporary

discourse, has shifted in boundary, name, and character for a number of countries. The end of World War II and the Korean armistice demanded substantial resources from fragile Asian governments, as well as from the West, for economic reconstruction. The governments of Japan, South Korea, and Taiwan, in addition to the ethnically Chinese colonies of Hong Kong and Singapore, concentrated their efforts on industrializing their economies. The United States and its European allies, offering many countries foreign assistance, sought to secure their political alignment with the West during the next three decades. In Southeast Asia, the Western powers obtained access to Thailand, Malaya (later Malaysia), the Philippines, and South Vietnam for military fortification against the threat of communism.

The Communist government of the People's Republic of China sealed itself off from the West in 1949, posing a destabilizing threat to the region until the late 1970s. Elsewhere wars and political strife festered between 1950 and 1980 and, along with famine and other natural catastrophes, disrupted life in North and South Korea, East and West Pakistan, North and South Vietnam, Cambodia, and Laos. India struggled for religious and social peace both within its borders and across those shared with Pakistan, Nepal, and China.

Despite occasional strife, political stabilization increased in most Asian countries, in some cases bolstered by autocratic leadership. This stabilization strengthened the basis of governance and enabled social and economic institutions to function with greater permanence. Under Mao Zedong, for example, a mass populist system replaced China's feudal structure. Despite idiosyncratic and often devastating social and political tremors induced by Mao, China secured a degree of order, social equity, and stability that provided for such basic needs as food, housing, education, health, and employment of its huge population.

Vaccination campaigns, environmental sanitation, and personal sanitation practices began to eradicate the major diseases in the 1950s and 1960s.

The elimination of large-scale wars throughout much of Asia halted daily threats of violence and loss of life to the populace. Agricultural production and distribution systems expanded food availability, and manufacturing systems grew in urban areas, absorbing a rising supply of labor. Peace exerted its powerful influence on mortality, removing malnutrition for the most part from the inventory of major causes of death to children.

Table 1 presents a selection of demographic, social, and economic indicators of conditions in the early 1950s or 1960s and around 1990 in 21 East, Southeast, and South Asian countries with populations of at least 1 million in 1950. In that year, 94 percent of the region's population of 1,255 million persons lay within the national boundaries of seven countries: China, India, Japan, Indonesia, East Pakistan (now Bangladesh), West Pakistan (now Pakistan), and Vietnam, in descending order of population size. Today, the region's total population is estimated to be 2.6 times greater, or 3,266 million, and the seven countries account for 83 percent of the total. Indonesia, Pakistan, and Bangladesh have overtaken Japan in population size.

The Colombo Plan and the World Health Organization introduced mass measures to control acute and communicable diseases in the 1950s and 1960s. Chandrasekhar (1967) reminds us that countries in the tropics and subtropics experienced severe public health problems until the 1960s. Millions of Asians suffered from malaria, hookworm, trachoma, yaws, filariasis, and Hanson's disease (leprosy). Vaccination campaigns eventually were able to help control the incidence of smallpox, typhus, cholera, and yellow fever. Environmental sanitation began to eradicate malaria, the plague, and encephalitis. Personal sanitation practices, particularly through appropriate disposal of human wastes, reduced infection rates from hookworm, roundworm, schistosomiasis, and dysentery. Prophylactic treatments became available for tuberculosis, syphilis, yaws, and malaria.

The gains achieved in health are visible in infant mortality levels from the early 1950s to 1990. Infant mortality rates of the 1950s were high across most of Asia and remain so today in some places. Levels in 1950–55 were above 150 deaths per 1,000 births in China, India, Indonesia, Pakistan (including East Pakistan/Bangladesh), Vietnam, Burma (now Myanmar), Afghanistan, Nepal, Cambodia, and Laos. They were below 100 (but no lower than 51) in only five countries: Japan, Sri Lanka, Malaysia, Hong Kong, and Singapore. By 1990, infant mortality rates were above 100 in only six countries and below 60 in 12 (China, Japan, Vietnam, Philippines, South Korea, Thailand, North Korea, Taiwan, Sri Lanka, Malaysia, Hong Kong, and Singapore). According to the latest United Nations *Human Development Report* (UNDP 1993, table 12), half or more of the populations in 12 of the 21 countries had access to safe water by the end of the 1980s.

The 1950s began an era of major agricultural and economic reform, forcing most Asian countries to confront simultaneously the demands of sovereignty and sustenance. Centralist regimes in China, North Korea, and Vietnam organized collective access to socioeconomic resources. Japan's postwar economy un-

derwent major reconstruction and revitalization. India, Indonesia, Vietnam, and Taiwan emerged from colonial occupation by the British, Dutch, French, and Japanese, respectively; and their governments assumed responsibility for the economic and social welfare of citizens. The United States government channeled substantial military and economic assistance into Taiwan through Taiwan's Joint Commission on Rural Reconstruction. India, independent since 1947 and the world's largest democracy, formulated and implemented a series of national development plans in its attempts to meet the needs of its large population.

During the early 1950s, annual per capita gross national product (GNP) was below $100 (in current US dollars) in Communist China, South Korea, Indonesia, Laos, Burma, South Vietnam, Afghanistan, Bangladesh, India, Nepal, and Pakistan (including present-day Bangladesh); between $100 and $200 in Taiwan, Cambodia, the Philippines, Thailand, and Ceylon (now Sri Lanka); and over $200 in Hong Kong, Japan, Malaya (now Malaysia), and Singapore. By 1991, significantly low incomes (below $500 in current dollars) were found in China, Cambodia, Laos, Bangladesh, India, and Pakistan, while significant increases in income levels were seen for Hong Kong, Japan, South Korea, Taiwan, Malaysia, and Singapore.

Agricultural reform in crop variety, modes of production, and land tenure caused per capita food production to rise significantly for a number of countries between the mid-1950s and the late 1960s and again between the mid-1970s and the early 1980s, as seen in Table 1. Food production was 34 percent higher over the first period in Japan, 24 percent higher in South Korea, and 18 percent higher in Malaysia and Thailand; but it declined in India, Indonesia, and Pakistan (including Bangladesh). In the second period, strong growth was experienced by Singapore (101 percent), Sri Lanka (43 percent), Malaysia (21 percent), and Indonesia (20 percent). Food production declined, though, in five countries: Hong Kong (21 percent), Nepal (13 percent), Japan and Cambodia (both 10 percent), and Afghanistan (6 percent).

Declining percentages of gross domestic product derived from agriculture between 1950 and 1980 indicate growing industrialization in the region. The levels declined steadily by about 10 percentage points over both 15-year periods in the three largest Asian countries. Indeed, these levels declined steadily over the three decades in most Asian countries. However, they remained nearly constant during the second 15-year period in Malaysia, Vietnam, and Bangladesh.

The rise in school enrollment ratios between 1950 and 1990 suggests important trends in cognitive and ideational change in the 21 countries. In 1950 enrollment ratios were high (above 60 percent) in just three countries: Japan, the Philippines, and Sri Lanka. By 1990, only three countries—Afghanistan, Bangladesh, and Pakistan—had school enrollment ratios below that level. The public provision and private consumption of universal primary education after World War II laid the groundwork for the dramatic economic growth recently experienced in the region, especially by countries along the Pacific Rim.

Between the 1950s and 1970s the movement of ideas along the information highway was limited to modes of interpersonal contact, newspapers, occasionally telephone or cable, and radio, if one lived near an urban transmitter. Most information circulated slowly. Since then, telecommunication networks supporting electronic mail, voice mail, facsimiles, and 24-hour news services have revolutionized global information access. Television, rarely available in the 1950s, today offers a powerful medium for information and innovation diffusion.

As seen in Table 1, by 1990 the number of television sets per 1,000 population ranged from highs of 620 in Japan, 376 in Singapore, 274 in Hong Kong, and 210 in South Korea, to moderate levels of 148, 112, and 60 respectively in Malaysia, Thailand, and Indonesia, to lows of under 10 in Cambodia, Afghanistan, Laos, Bangladesh, Myanmar, and Nepal. Similarly, daily newspaper circulation per 1,000 population rose in a number of countries between the mid-1960s and the late 1980s. Substantial increases occurred in South Korea, Malaysia, and Thailand; and today exceptionally high circulation levels are found in Hong Kong, Japan, South Korea, Singapore, and North Korea.

Growing literacy and the development of print and electronic communication media, combined with rapid modernization, eliminated many traditional restrictions on social and economic transactions and information exchange. They also demystified cultural interpretations and supported growing individuation in work and domestic life-styles. In a classic study entitled *What Reading Does to People*, Waples, Berelson, and Bradshaw (1940) identified five main effects of literacy: information, efficacy, reinforcement, and aesthetic and distractive effects—the first three of which are relevant to contraceptive innovation. Rising levels of literacy and formal education expanded personal access to and management of information. In addition, they made individuals' behavior more effective and reinforced personal beliefs over cultural habits. These effects characterized the transformation in modes of learning and information exchange that took place in many Asian countries. Shifts in knowledge and ideas produced by these changes provided the basis for the rapid adoption of birth control by Asian populations.

Table 1. Selected demographic, social, and economic indicators: 21 populous Asian countries, 1950 to the early 1990s

Subregion and country	Population (thousands)		IMR (deaths per 1,000 births)		Years of life lost per 1,000 population, 1990	Percentage of population with access to safe water, 1988–90	GNP per capita (in US $)	
	1950	1995 (est.)	1950–55	1990			1962	1991
East Asia								
China	554,760	1,238,319	195	53	u	71	80[c]	370
Hong Kong	1,974	5,932	79	7	7	100	313[c]	13,430
Japan	83,625	125,879	51	4	8	u	556	26,930
Korea, Dem. People's Rep. (North)	9,726	23,922	115	30	u	u	u	u
Korea, Rep. (South)	20,357	45,182	115	15	10	78	83	6,330
Taiwan[d]	7,981	20,900	u	5	u	u	154	7,761
Southeast Asia								
Cambodia (Kampuchea)	4,346	9,447	165	123	u	u	115	200
Indonesia	79,538	201,477	160	68	36	42	85	610
Laos	1,755	4,882	180	110	93	28	59[c]	200
Malaysia (Malaya)	6,110	20,125	99	14	15	78	296	2,520
Myanmar (Burma)	17,832	46,548	206	72	u	33	59	u
Philippines	20,988	69,257	100	43	27	81	128	730
Singapore	1,022	2,853	66	6	9	100	584[c]	14,210
Thailand	20,110	58,265	132	40	22	72	100	1,570
Vietnam	29,954	73,811	180	45	u	50	94[c]	908
South Asia								
Afghanistan	8,958	23,196	227	168	u	21	70	u
Bangladesh (E. Pakistan)	41,783	128,251	180	116	69	78	78	220
India	357,561	931,044	190	91	u	75	81	330
Nepal	8,182	22,124	197	107	67	37	56	u
Pakistan (W. Pakistan)	39,513	134,974	190	109	61	50	78	400
Sri Lanka (Ceylon)	7,678	18,346	91	19	14	60	136	500

Sources:

Population, 1950 and 1995: UN (1993a, various pages).

Infant mortality rates, 1950–55: UN (1991, various pages); 1990: PRB (1990).

Years of life lost per 1,000 population, 1990: World Bank (1993, table 28).

Percentage of population with access to safe water, 1988–90: UNDP (1993, table 12).

GNP per capita: 1962: Chandrasekhar (1967, table 6); 1991: Ross, Mauldin, and Miller (1993, table 3).

Percentage of GDP from agriculture: 1950 and 1965: Nortman (1970, table 4); 1980: Nortman (1985, table 3).

Index of per capita food production: 1966–68: Nortman (1970, tables 4 and 5); 1980–82: Nortman (1985, tables 3 and 4).

School enrollment ratios: 1950: Nortman (1970, tables 4 and 5); 1990: Ross, Mauldin, and Miller (1993, table 3).

Daily newspaper circulation: 1963: Freedman and Takeshita (1969, 21); 1988–90: UNDP (1993, table 2).

Television sets per 1,000 population, 1990: UNDP (1993, table 2).

Table 1 *(continued)*

Subregion and country	Percentage of GDP from agriculture			Index of per capita food production (%)		School enrollment ratio (%)		Daily newspaper circulation per 1,000 population		Television sets per 1,000 population, 1990
	1950	1965	1980	1966–68[a]	1980–82[b]	1950	1990	1963	1988–90	
East Asia										
China	59	48	38	u	111	20	88	u	u	31
Hong Kong	u	u	1	u	79	30	87	u	632	274
Japan	21	12	4	134	90	86	99	439	587	620
Korea, Dem. People's Rep. (North)	u	u	u	u	110	u	u	u	230	15
Korea, Rep. (South)	49	39	17	124	106	54	97	56	280	210
Taiwan[d]	38	26	8	110	u	47	u	64	u	u
Southeast Asia										
Cambodia (Kampuchea)	u	41	u	u	90	11	u	u	u	9
Indonesia	u	56	24	95	120	21	81	u	28	60
Laos	u	u	u	u	u	9	65	u	3	7
Malaysia (Malaya)	38	28	29	118	121	40	75	57	140	148
Myanmar (Burma)	u	u	47	103	113	u	60	9	5	2
Philippines	42	33	23	105	106	89	97	17	54	48
Singapore	u	u	1	u	201	50	87	u	280	376
Thailand	50	33	24	118	111	44	59	12	72	112
Vietnam	34[e]	29[e]	29[e]	u	112	u	69	u	9	39
South Asia										
Afghanistan	u	62	u	101	94	3	20	u	11	8
Bangladesh (E. Pakistan)	58	49	49	96	101	20	42	5	6	5
India	51	48	33	97	104	21	68	12	u	32
Nepal	u	47	u	u	87	u	60	u	8	2
Pakistan (W. Pakistan)	58	49	26	96	103	20	29	5	15	17
Sri Lanka (Ceylon)	58	41	26	108	143	68	88	35	32	35

Notes: Country names in parentheses are the former names. The table excludes countries in West Asia and those with populations under 1 million in 1950. The latter group includes Macao, Mongolia, Brunei, Bhutan,and Maldives, which had a combined population of 4.0 million, or 1.3 percent of the non-West Asian subcontinent population, in that year.

GDP—gross domestic product; GNP—gross national product.

IMR—infant mortality rate.

u—data are unavailable.

a. In relation to 1952–56.

b. In relation to 1974–76.

c. 1966 gross domestic product.

d. In this and subsequent tables, Taiwan is treated as an independent country for statistical purposes.

e. South Vietnam.

A SOCIOLOGICAL VIEW OF FAMILY PLANNING ORGANIZATIONS

To shed light on the performance of family planning programs, I have adopted an organizational model appropriate for systems that deliver human services (Simmons and Simmons 1987; Azumi and Hage 1972). Following others (Freedman and Berelson 1976; Simmons 1986), I define family planning programs as nationally organized efforts that expend public resources, through governmental or nongovernmental delivery channels, to provide contraceptive information and services to couples of childbearing age. The discussion that follows focuses on the components of family planning organizations—their environment, resources, structure, and service production and consumption—and on changes in these components over time. This model for family planning programs facilitates a review of their organizational behavior and provides a framework for tracing their historic development.

Paying attention to the reasons for family planning organizations' effectiveness and efficiency may provide more insight into their likely future performance than does simply assessing their level of demographic impact. Although the question of family planning programs' impact on fertility is still debated (Pritchett 1994), it has less relevance to the Asian situation than it did when the Asian programs were first established. Questions of greater interest to most observers are, first, how to maintain long-standing per capita resource commitments to family planning given new competing health and development initiatives and rising public demand, and, second, how to allocate limited resources for maximum efficiency without sacrificing the programs' effectiveness.

Past analyses of family planning effort have focused to varying degrees on the roles of such organizational elements as the work force (Phillips et al. 1993), financial and material resources (Nortman 1987), and service infrastructure (Simmons and Phillips 1992). Various studies, for example, have examined the service infrastructure in relation to programs' volume of services or productive capacity (Phillips et al. 1984), or eventual changes in couples' contraceptive and fertility behavior (Mauldin and Berelson 1978; Mauldin and Ross 1991). These analyses have validated the structure and components common to most national family planning programs, distinguishing the programs from large, single-agency family planning projects that are aimed at population subgroups.

The organizational model offers a basis for theorizing about programs' future performance under changing environments, such as anticipating their natural progression through stages of variation (diversification), selection (emerging focus), and retention (final focus), or their restructuring in response to shifting resources (Aldrich and Pfeffer 1976). Some observers (e.g., Aldrich 1971; Hannan and Freeman 1974) suggest that organizations faced with constraints evolve naturally toward a specialized form, retaining those features that best adapt to a changed environment. Others (e.g., Pfeffer 1976) contend that administrators are able to manage the environments in which their organizations operate, restructuring those environments in anticipation of changing resources. These two hypotheses and their underlying rationales can provide insights into the future of organized family planning efforts in Asia. Both implicitly ask the question: What is the role of organizational leadership? In other words, how important are its level of commitment and its quality? Although leadership cannot be easily quantified or predicted, determining whether it comes from inside or outside an organization may indicate whether programs should be thought of as active or passive entities in dynamic environments.

EMERGENCE OF POPULATION POLICIES AND PROGRAMS

Reviews of the importance and evolution of Asian population policies are available from various sources (e.g., Sadik 1991; UN 1993b). In the 1950s officials in the populous Asian countries began supporting policies to reduce population growth and promote family planning as an individual reproductive right. In rapid succession and unprecedented fashion, more than 20 Asian governments expressed official concern about high levels of reproduction in their countries and formulated policies to address them, including direct intervention to lower fertility (UN 1993b). Of the first 10 governments to support family planning and slower population growth, seven were in Asia: India in 1951; Pakistan in 1960; South Korea in 1961; China in 1962; and Singapore, Sri Lanka, and Turkey in 1965 (Donaldson and Tsui 1990).

Although only half of Asia's countries had official policies supporting reduced population growth and family planning activities two decades after India formulated the first government policy, more than 90 percent of the region's population resided in countries with supportive policies. Of the 21 countries studied here, only one (Afghanistan) had not intervened by 1990 to manage its fertility level. National leadership in half a dozen Asian countries—China, India, Indonesia, Taiwan, Singapore, and Thailand—openly and early supported the public sector's involvement by financing fertil-

ity-reduction efforts. Since 1980, however, Singapore and Malaysia have reversed their policy positions and adopted pronatalist measures. They have joined the governments of Cambodia, North Korea, and Laos in viewing their national fertility levels as being satisfactory or too low.

A compelling rationale for population policies in the region has been demographic: the need to reduce population growth through fertility management in order to improve social and economic well-being. This rationale has served as an organizing principle for family planning programs and often helped define operational targets (for example, in China and India). By comparison, rapid population growth has been of lesser concern to family planning programs in Latin America and sub-Saharan Africa. In Latin America the predominant rationale for public sponsorship of family planning services is that access to such services is a basic human and reproductive right. In sub-Saharan Africa, the justification for population policies and family planning programs has been primarily the health benefits of birth spacing and small families.

These different rationales for government-sponsored family planning programs raise an interesting question: Do rationales that emphasize the harmful economic consequences of high fertility lead to more intensive programmatic responses than those seeking the health or human-rights benefits of family planning? Asian governments in heavily or densely populated countries such as China, India, and Bangladesh appear to show a greater level of concern for potentially adverse economic consequences of high fertility than do those of less densely populated countries such as Afghanistan or Cambodia. Those concerned about reduced prospects for national economic development as a result of high rates of population growth have responded by supporting national family planning programs. In five of the six most populous developing countries of Asia (China, India, Indonesia, Bangladesh, and Vietnam), which comprise 79 percent of the region's population, a commendable level of service coverage has been achieved. In 1989 the average score on family planning availability and accessibility for those countries (unweighted by population size) was 82 percent of the maximum level possible, according to Ross et al. (1992, table 11). For the whole of Asia, family planning availability and accessibility ranged from 52 to 63 percent of the maximum level (Ross and Frankenberg 1993, 15). This accomplishment suggests that the negative economic consequences of rapid population growth were of major concern to many Asian leaders during the decades following World War II.

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Table 2 chronicles the emergence of Asian population and family planning policies and the establishment of public and private family planning in 14 Asian countries. In most instances, nongovernmental organizations (NGOs), primarily local chapters of the International Planned Parenthood Federation, began family planning activities before government officials adopted antinatalist policies or established family planning programs. For example, Indonesia's Family Planning Association, a private organization, was established in 1957 and revitalized in 1966, two years before the Indonesian government adopted its family planning policy and created the National Family Planning Coordinating Board (BKKBN). Similarly, in Sri Lanka (formerly Ceylon) the Family Planning Association began operations in 1953 and the government began providing support for family planning activities in 1959. Official policy and a formal program, however, did not commence until 1964/65. Even so, by the late 1970s and the 1980s, when the governments of sub-Saharan Africa were beginning to adopt antinatalist policies, the same types of policies were a decade or two old in most countries of Asia (Watson 1977; Sadik 1991). Although obstacles remained in individual countries, such as legislation limiting the distribution of specific contraceptives, the principle of fertility regulation by governments and individuals was accepted and in force.

Support for nationally organized family planning services has been part of a larger effort to support economic development, social reform, and public health. For three decades, beginning in the 1950s, international donors provided substantial assistance to Asian countries to advance agricultural innovations, such as mechanized cultivation techniques, the use of fertilizers and hybrid grain varieties, and improved irrigation methods. Schools were built and rural markets established a ready supply of food. Health ministries mobilized personnel, equipment, and other resources on a broad scale to establish a service infrastructure and eradicate diseases through such preventive measures as immunization programs and environmental sanitation. This service infrastructure later delivered family planning resources—contraceptive commodities, equipment, personnel, and materials—to local clinics.

Table 2. Initiation of official family planning policy, nongrovernmental organization, or government program activity, by year: selected Asian countries

Country	1952	1953	1956	1957	1958	1959	1960	1961	1962	1964	1965	1966	1968	1970	1972	1976	1978	1984
China			Policy G Prog															
Korea, South								NGO	G Prog							Policy		
Indonesia												NGO	Policy G Prog					
Laos														NGO	Policy	FP ban		
Malaysia									Govt	Policy G Prog								Pronatalist policy
Myanmar							NGO				End NGO					Policy		MCH
Philippines						NGO								Policy G Serv				
Thailand				NGO				Govt						G Serv	Policy			
Vietnam									NGO (North)		NGO (South) G Serv						Policy	
India	Policy G Prog																	
Nepal					NGO						Policy G Serv					G Prog		
Pakistan & Bangladesh Govt		NGO					Policy G Prog								Policy* G Prog*			
Sri Lanka		NGO				Govt					G Prog						Policy	

Sources: Cuca (1979, table 1); IPPF (1989, various pages).

FP—family planning.

Govt—government activity (financial or facilities).

G Prog—government program.

G Serv—government services.

MCH—maternal and child health services.

NGO—nongovernmental-organization activity.

Policy—official policy supporting family planning or fertility reduction.

*In Bangladesh, following independence.

Just as government policies and actions were critical to the equitable access to birth control information and supplies, so too was major social and economic change. The combination of a desire for smaller families on the part of childbearing couples and increased access to contraceptives led to an unprecedented two-child decline in the average number of children borne by Asian women in just four decades (Freedman 1995, table 2).

RESOURCES

Public organizations that provide human services operate under different resource constraints from those of private organizations because their resource revenues tend to be more certain. In contrast, the long-term survival of private (nongovernmental) organizations depends on their ability to adapt to revenue opportunities that may arise. Despite having favorable access to national budgetary resources, public programs are not funded indefinitely nor, in many cases, adequately. New service initiatives compete with existing programs to establish, maintain, or increase their own budgets. This was the case in the 1970s, when family planning programs in developing countries sought to obtain government funding at the expense of programs previously established to control smallpox and malaria. Additional resources for both public and private family planning organizations came in the form of grants and loans from donor countries in the industrialized world. For political reasons, China and India benefited less from this external largesse than did some other developing countries in Asia.

Comparative data are not available on annual family planning appropriations and expenditures by national governments and international donors prior to 1980, making it difficult to calculate the total amount spent on family planning activities since 1960. On the basis of available information, however, it is possible to make several observations about family planning resources.

The first relates to the absolute and relative amounts of public and international expenditures on family planning over the course of the three decades: significant and increasing amounts of financial resources were appropriated to, and expended by, Asian countries to promote and deliver family planning services, through both governmental and nongovernmental channels. The principal international donor of population assistance has been the United States. Between 1968, when it established a program of population assistance through the Agency for International Development (USAID), and 1993, the United States provided $2.4 billion to support family planning and population programs worldwide (Nortman 1987; John Snow, Inc., and USAID 1994). In 1991 alone, the U.S. government accounted for 45 percent of all population assistance to developing countries.

Until recently USAID spent nearly $580 million annually on population and family planning assistance, with a significant share going to Asia, where two major beneficiaries were Bangladesh and the Philippines. Early in 1996 Congress cut funds for population assistance by 35 percent, partly in response to the Administration's earlier removal of abortion-related restrictions on such assistance. With a budget of only $378 million, no authority to obligate funds before midyear, and an imposed monthly apportionment rate of only 6.7 percent thereafter, USAID is having to sharply curtail its population activities.

International assistance for population activities in Asia is not commensurate with the region's share of global population. Moreover, funding levels for Asia have been declining as fertility rates in the region have come down and demand for assistance has increased in other regions. An assessment of global population assistance prepared by the United Nations Population Fund (UNFPA 1993, table 5) indicates the shift in priorities of donor countries: in 1982, 44 percent, or $161.5 million, of a total of $367.2 million was directed to Asian and Pacific countries; but by 1991 the proportion had declined to 28 percent ($205.6 million of $731.9 million). Although the dollar amount of funds for Asia has risen, inflation and population growth in the region have more than kept pace with that increase. In current dollars, annual population assistance in Asia has remained nearly unchanged over the past decade at about six cents per person.

Domestic funding for family planning accounts for a larger share of total funding in Asia than in other regions. Nortman (1987, table 2) reports that around 1982, 11 of 19 East, South, and Southeast Asian governments financed 65 percent or more of their family planning budgets from domestic sources. Domestic funding in China, India, and Indonesia accounts for 75 percent or more of their family planning budgets. By comparison, among 29 African or West Asian countries, only three reported domestic support for family planning in excess of 65 percent. Thus, the funding levels in the Asian countries of interest here reflect a significant degree of commitment on the part of local governments to programs aimed at fertility management.

Further evidence of local government support for family planning can be found in public expenditures on family planning both as a percentage of public health expenditures and as a percentage of the gross national product (GNP). Table 3 shows that several countries have committed sizable shares of their public health expenditures to family planning in recent years: Bangladesh (36–38 per-

Table 3. Aggregate public expenditures on family planning programs: selected Asian countries, 1985 and 1989

Country	As percentage of public health expenditure		As percentage of gross national product	
	1985	1989	1985	1989
China	8	8	0.09	0.07
Korea, South	7	2	0.04	0.02
Indonesia	16	20	0.12	0.13
Malaysia	2	2	0.03	0.02
Philippines	12	14	0.05	0.03
Thailand	4	4	0.04	0.03
Vietnam	10	5	0.06	0.05
Bangladesh	36	38	0.31	0.37
India	12	13	0.16	0.17
Nepal	14	11	0.16	0.16
Sri Lanka	1	u	0.01	u

Source: Sanderson and Tan (1993, table 4.1).

u—data are unavailable.

cent), Indonesia (16–20 percent), India (12–13 percent) and the Philippines (12–14 percent). Nepal and Vietnam, which expended 10 or more percent of public health funds on family planning in 1985, reported reduced shares in 1989.

In contrast with their significance as a share of health budgets, the expenditures on family planning represent insignificant proportions of the countries' GNP, accounting for no more than 0.4 percent in Bangladesh and as little as 0.01 percent in Sri Lanka during this period. By comparison, military expenditures as a percentage of GNP have reached as much as 1.5 percent in Bangladesh, 1.7 percent in Indonesia, 3.0 percent in India, and 3.8 percent in South Korea (World Bank 1993, table 11).

Although the national resources earmarked for family planning are substantial in many Asian countries, external funding for programs remains important and probably a critical supplement to national efforts. As Table 4 indicates, for every public dollar expended on family planning in Bangladesh in 1989, 60 cents came from external sources; and in the Philippines and Indonesia the share provided by external funds was about 45 cents for every public dollar. Table 4 also shows that as a share of total public spending on family planning, external funds rose significantly in Indonesia and Vietnam between 1985 and 1989 but fell by 56 percent in Thailand, by 49 percent in Nepal, and by 38 percent in India.

Although the national resources earmarked for family planning are substantial in many Asian countries, external funding for programs remains important and probably a critical supplement to national efforts.

The declining trend in external funding for Thailand is visible in Figure 1, which shows the balance in annual per capita budget between the government and other sources gradually shifting toward full government funding between 1978 and 1993. Similar trends toward self-sufficiency have been reported for roughly the same period in Hong Kong, South Korea, Taiwan, Malaysia, and Singapore (Ross, Mauldin, and Miller 1993, table 22). It is worth noting that contraceptive practice in these countries has shown no major attrition with the reduction of external assistance.

To know how family planning funds are expended, one must first know what operational components are included in family planning programs. These components usually encompass a range of functions necessary for the programs to complete their mandated service tasks: management and planning; clinical and nonclinical training; supervision; contraceptive procurement and distribution; information, education, and communication (IEC); and monitoring, evaluation, and research. In addition, some programs offer cash or in-kind incentives to family planning acceptors (usually those accepting sterilization or intrauterine

Table 4. External funding as a percentage of total public spending on family planning programs: selected Asian countries, circa 1985 and 1989

Country	Circa 1985	Circa 1989
China	5	6
Korea, South	5	4
Indonesia	37	46
Malaysia	4	6
Philippines	48	44
Thailand	39	17[a]
Vietnam	6	17[b]
Bangladesh	64	60
India	21	13
Nepal	69	35

Sources: Various sources, as cited by Sanderson and Tan (1993, table 4.3).

Note: Total public spending on family planning programs includes government spending and external financing channeled through governments. External financing channeled through nongovernmental organizations is not included.

a. 1990 data for Thailand indicate a decrease to 2 percent.

b. 1990 data for Vietnam indicate an increase to 21 percent.

devices), to service providers, or to both. In India and Bangladesh, most incentive payments are made to clients rather than to providers, whereas the opposite is true in the Philippines.

Table 5 shows how 11 Asian countries allocate their family planning expenditures among four of those components: contraceptive supplies, training, IEC activities, and incentives. Salaries, which represent a major share of all family planning operational costs, are excluded from the table because of data-measurement problems. Because family planning personnel are often recruited from the health sector and have multipurpose functions, it is difficult to determine the portion of their time spent on family planning as opposed to other responsibilities.

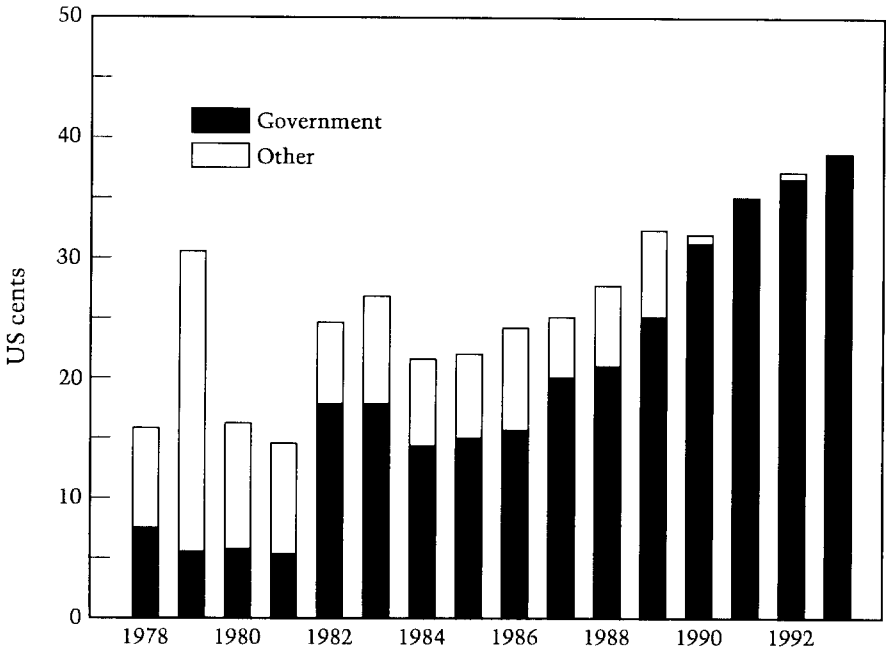
Excluding personnel costs, in most countries the largest expenditure for family planning is for contraceptive commodities, which account for anywhere from 28 percent of public spending in India to 88 percent in Malaysia. The South Korean government, which subsidizes the family planning needs of mostly low-income families, spends the largest amount per capita on contraceptives: $3.21 per married woman of reproductive age. Thailand spends the next highest amount, $1.06. Vietnam, the Philippines, China, and India report spending the lowest amounts for contraceptives (between 2 and 18 cents per woman). The cost of contraceptive commodities in each country may reflect differences in the levels of donor subsidization. In none of the countries does public spending on nonpersonnel costs reach 1 percent of GNP per capita. It is lowest (0.03–0.10 percent of GNP per capita) in Malaysia, the Philippines, Sri Lanka, South Korea, and Vietnam and highest (0.16–0.41 percent) in Bangladesh, Nepal, India, and Indonesia.

Training, IEC, and incentives vary in their share of expenditures among the countries shown. In India, three-fifths of public spending on family planning is used to pay incentives to clients (primarily for sterilization). In Vietnam, nearly equal percentages of family planning expenditures are for commodities, IEC, and training, with apparently none allocated to incentives.

The modest levels of support suggest that public investment in family planning programs is cost-effective in these countries, given governments' fertility objectives and the programs' demographic impact. The World Bank (1993, 117) has identified family planning programs as a cost-effective investment because of their positive impact on public health. Since most Asian countries have begun or are well along in a transition from high to low fertility rates, meeting future demand for contraceptive commodities is likely to entail recurring and increasing expenditures on contraceptive supplies, as compared with expenditures on IEC or training.

In recent years, most Asian governments have mobilized increasing levels of personnel and facilities to expand their programs' coverage and services. As resources for those programs intensify, associated increases are expected in levels of achievement, such as services provided and numbers of users. Table 6 presents available statistics on program resources for eight Asian countries. Data for five of them allow comparisons of resources at two points in time, around 1970 and around 1985. Statistics for the other three are available for only the more recent year or period, but they give some idea of the extent of outlays in family planning material and personnel resources. For example, for the period of 1987–90 China reports having 147,000 full-time family planning cadres (workers), roughly one per 1,700 women of

Figure 1. Annual per capita budget for family planning, by source: Thailand, 1978–93 (in current US cents)



Sources: 1978–83: Nortman (1985, table 9); 1984–93: Ross, Mauldin, and Miller (1993, table 22).

reproductive age; more than 25,000 township family planning stations; 600,000 branches of the Family Planning Association; and more than 10,000 retail outlets. In 1980 Bangladesh had more than 40,000 nonmedical staff allocated to family planning. The Philippine program in 1982 engaged 10,000 midwives and 52,000 volunteers to perform family planning activities at more than 13,000 facilities.

South Korea, Indonesia, Malaysia, and Thailand report increased numbers of personnel and facilities. Between 1970 and 1983, for example, the number of Thai physicians providing family planning services rose nearly 30 times, from 229 to 6,550, and the number of facilities increased from 274 to 6,867. Indonesia reported having 12,000 family planning fieldworkers in 1983—a dramatically greater number than the 156 in 1970—and 3,533 public and private clinics providing family planning services, plus 53,732 village distribution centers. In 1970 it had only 310 government clinics. Similarly, in South Korea the number of health providers involved in family planning was substantially larger in 1980 than a decade earlier and included nonmedical personnel dedicated to outreach, demand generation, and administrative support. Staff diversification also occurred in India between 1970 and 1983, although the number of staff delivering family planning services and the total number of service delivery points do not seem to have changed much over that period.

These data must be viewed cautiously because they are subject to variable definitions, do not lend themselves easily to cross-country comparisons, and do not directly measure the adequacy of programs' expansion to meet demand. Regrettably, no global management-information system exists to track program inputs of this type over time. Although existing sources (e.g., Ross et al. 1992; Ross, Mauldin, and Miller 1993; Nortman 1970, 1985) are helpful, they do not substitute for a formal, standardized system of program information.

Nevertheless, the available statistics suggest a major expansion of family planning service infrastructures. The expansion is consistent with increases in services, such as outreach to rural areas, and with greater service diversity, which is necessary to extend contraceptive access to a majority of childbearing-aged couples in Asia. Having increased and diversified their services, family planning programs are likely to give priority to issues of operational efficiency and targeted services over the next decades.

Table 5. Public expenditures on contraceptives, family planning–related training, IEC activities, and incentives: selected Asian countries, recent years

Country and year	Expenditure per married woman of reproductive age			Percentage distribution of expenditure on the four components[a]			
	Contraceptives (US $)	Training, IEC, and incentives (% of GNP p.c.)	All four nonpersonnel components (% of GNP p.c.)	Contraceptives	Training	IEC	Incentives
China (1990)	0.11	u	u	u	u	u	u
Korea, South (1989)[b]	3.21	0.02	0.09	73	1	14	12
Indonesia (1989)	0.44	0.06	0.16	63	18	20	0
Malaysia (1990)	0.49	*	0.03	88	4	8	0
Philippines (1986)	0.09	0.01	0.03	65	13	21	1
Thailand (1989)	1.06	0.02	0.10	82	10	7	0
Vietnam (1990)	0.02	0.04	0.06	34	29	37	0
Bangladesh	0.57	0.11	0.41	74	9	4	14
India (1990)	0.18	0.14	0.19	28	5	7	60
Nepal (1990)	0.22	0.15	0.30	49	8	13	30
Sri Lanka (1990)	0.25	0.01	0.07	82	9	3	6

Sources: Various sources, as cited by Sanderson and Tan (1993, table 4.2).

GNP p.c.—gross national product per capita.

IEC—information, education, and communication.

* Less than 0.01.

a. Percentages may not sum exactly to 100 because of rounding.

b. Subsidies for low-income acceptors of sterilization have been declining steadily since 1986; by 1990, they were only 34 percent of the 1989 amounts.

Table 6. Personnel and facilities specifically allocated to family planning, by type: selected Asian countries, circa 1970 and 1985

Country	Period or year	Personnel		Facilities	
		Type	Number	Type	Number
China[a]	1987–90[b]	Full-time FP cadres	147,000	County-level FP service stations	2,203
				Township FP stations	25,345
				China FPA branches	600,000
				Retail outlets	
				Pharmacies	5,548
				Hospitals	2,195
				Cooperatives	1,802
				Other	3,000
Korea, South	circa 1970	Physicians certified for IUD insertions & vasectomies	1,691	Hospitals, clinics, centers	1,756
		Nurses, midwives,& fieldworkers	2,400	Mobile teams	38
	1980	Physicians	46	City & county health centers	214
		FP-designated private physicians	2,006	Planned Parenthood Federation of Korea clinics	15
		FP workers	2,631	Urban FP centers for low-income clients	20
		Administrative & program managers	919	FP-designed clinics & hospitals	2,006
		IEC officers	168		
		Research & training professionals	47		
		Paramedics	361		
Indonesia	circa 1970	Physicians	171	Government clinics	310
		Nurse-midwives	293		
		Other FP personnel	156		
	1983	Physicians	1,500	Clinics	
		Midwives	3,250	Health Ministry	2,895
		Auxilary midwives	2,750	Military	240
		Fieldworkers	12,000	Other government	120
		Clerks	2,250	Private	278
				Village contraceptive distribution centers	53,732
Malaysia	circa 1970	Physicians	3	Hospitals, clinics, centers	234
		Other medical personnel	140	Mobile teams	38
		Fieldworkers & clerical staff	15		
	1980	National FP Board			
		Medical & administrative officers	50	Main clinics	84
		Supervisors & paramedics	285	Satellite & mobile clinics	423
		Laboratory assistants	8		
		Clerical, technical, & support staff	983		
		Family Planning Association			
		Medical officers	30	Main clinics	42
		Paramedics	33	Satellite & mobile clinics	179
		Administrative staff	88		
		Ministry of Health (MOH)			
		Nursing sisters & paramedics	4,354	MOH integrated clinics	1,324
				Federal Land Development Project clinics	102
				Traditional birth-attendant clinics	150

Table 6. ***(continued)***

Country	Period or year	Personnel		Facilities	
		Type	Number	Type	Number
Philippines	1982[b]	Clinic physicians	2,859	Provincial hospitals & medical centers	85
		Clinic nurses	2,255	City health clinics	240
		Clinic midwives	4,880	Industrial clinics	861
		Village midwives	10,000	Private hospitals & clinics	471
		Village volunteers	52,000	Other hospitals & clinics	106
				Rural health units	1,595
				Village health stations	10,000
Thailand	circa 1970	Physicians	229	All facilities	274
		Nurses	612		
		Midwives	3,050		
		Part-time fieldworkers	1,797		
	1983	Physicians	6,550	Government hospitals	401
		Nurses	15,036	Health centers	4,688
		Midwives	7,615	Midwife centers	1,778
Bangladesh	1980[b]	Medical officers	241	Family welfare centers	1,144
		FP officers	457	FPA & FWA training centers	8
		Medical assistants	115	Family welfare village training institutes	4
		FP assistants (FPAs)	4,392	Model clinics	7
		Family welfare assistants (FWAs)	12,337	Field practice hostels	44
		Family welfare visitors	2,471	Mother & child welfare centers	83
		Traditional midwives	8,000		
		Traditional birth attendants	12,375		
India	circa 1970	Physicians	13,000	Urban centers	1,779
		Regular fieldworkers	125,000	Rural centers	29,675
		Occasional field workers	375,000	Mobile teams	256
	1983	Physicians	6,868	Family welfare centers	
		Aux. nurse-midwives	68,139	Urban	2,505
		Public health nurses		Rural	5,428
		& lady home visitors	12,397	Rural subcenters	23,924
		Health assistants & male workers	14,290	Central training centers	4
		Mass education &		Health & family welfare training centers	47
		information workers	367	Postpartum centers	574
		Extension workers	5,718		
		Statistical & professional staff	6,000		

Sources: Earlier period: Nortman (1970, table 7). Later period: Ross, Mauldin, and Miller (1993, table 29). China data: Sanderson and Tan (1993, 123–24).

FP—family planning. FPA—Family Planning Association.

a. Statistics for China are incomplete.

b. Earlier statistics are unavailable for China, Bangladesh, and the Philippines.

ORGANIZATIONAL STRUCTURE

A third element of family planning programs that is useful to examine over time is the programs' structure, which reflects task differentiation and organizational complexity. Organizational sociology, which attempts to explain patterned action in organizations, identifies the following characteristics of organizational structure: a hierarchy of authority (or distribution of power), the use of rules, and a defined role for technical experts within the division of labor (Azumi and Hage 1972). Organizations' structures are determined by the degree of differentiation or structural complexity that emerges with organizational growth and environmental uncertainty (Lawrence and Lorsch 1967). For example, when environments are more certain, organizations become more formalized in carrying out routine tasks. Likewise, when environments are uncertain, organizations develop a high degree of subsystem differentiation and integrative mechanisms. In the case of family planning programs, their internal structures become complex more rapidly if there is either organizational growth or environmental uncertainty that constrains the achievement of a common organizational goal—that is, reducing fertility levels and controlling population growth.

For Asian family planning programs, the 1970s and 1980s were indeed a period of rapid organizational growth. Several strategic developments led to the diversification of program structures. These included the introduction of multisectoral efforts to implement population and family planning policies, the increasing participation of the private sector in the delivery of contraceptive services, experiments with nonclinical distribution of contraceptives, and improvements in contraceptive technologies—all designed to increase popular acceptance. These structural changes occurred primarily because program managers decided to extend service outreach more vigorously, divorce some services from medical prescription, and engage the full government apparatus in achieving their policy objectives. External inducements came from international agencies prepared to offer technical and financial assistance for these efforts. The structural differentiation of the programs was therefore less a reaction to constraints than a proactive response to growth opportunities in their environments.

In a number of Asian countries (e.g., Indonesia, Malaysia, Singapore, Thailand, and the Philippines), the adoption of official family planning policy immediately led to the formation of national coordinating units, whose members represented various development sectors—often health, agriculture, education, and social welfare. Extending family planning services and generating family planning demand were framed as a joint responsibility aimed at achieving social development. Agricultural extension agents, school curriculum specialists, and social workers were among the sectoral workers recruited to incorporate population and family planning content into their task assignments.

Evidence is mixed about the success of those intersectoral efforts to introduce family planning services into nonhealth arenas. Although the national coordination boards probably offered political visibility and legitimacy to family planning activities, the significance of the individual sectoral contributions is unclear. Population-education curricula in schools may have modified attitudes about family size, and agricultural extension agents have probably referred some couples to family planning service providers. The collective impact of intersectoral linkages has not been fully evaluated, however.

In the health sector, the introduction of family planning into maternal and child health (MCH) services found a more natural fit. During the 1970s most governments of the region began delivering family planning services through the health ministry's clinic system, integrating them with MCH services. By the 1990s, the political need to manage the programs separately, raise their visibility, and channel resource investments to them had diminished. Program subsystems, having developed independent functions, were more easily integrated into similar social programs having parallel operations.

An early decision about program structure that had important implications for service delivery concerned the involvement of private health providers in public family planning activities. Two early pioneers in governmental family planning efforts—Taiwan in the mid-1960s and South Korea in the early 1970s—immediately opted to recruit private physicians as partners and service points for publicly subsidized contraceptive delivery (Freedman and Takeshita 1969; Kim, Ross, and Worth 1972). Referral systems were established for health workers in towns and villages. Using a coupon system, the health workers referred potential intrauterine-device (IUD) adopters to trained public and private physicians, thereby expanding the outreach of family planning services. This collaboration between public and private providers was seen as critical to the success of the two programs and has been an objective of many other programs in Asia and elsewhere.

The decision to partner public with private family planning efforts had other consequences as well. Relations between nongovernmental and government programs often evolved into symbiotic divisions of labor, with government programs concentrating on improving rural couples' access to family planning ser-

vices through the existing health infrastructure, while private programs focused on services for urban populations, motivational activities, outreach to special populations (e.g., men and adolescents), and demonstration projects. The division of labor gradually increased the diversity of organizations providing services and allowed more efficient use of limited resources. From a sociological perspective, the specialization and differentiation of tasks in government and nongovernmental family planning organizations followed a natural course of evolution.

To allocate their resources for the greatest effectiveness and to sustain their leadership and donor commitment, family planning organizations have had to make strategic decisions from the outset. A particularly significant decision about service delivery concerned outreach initiatives, which assumed two forms. The first was to attach family planning fieldworkers to clinics or health centers, where they had responsibility for motivation, referral, and client follow-up. The second was to have workers outside the clinic system—that is, community-based agents and private retailers—dispense contraceptives without prescription.

The expansion of family planning services beyond clinical distribution sites was a major program development and a rallying point for international donor agencies involved in family planning assistance from the mid-1970s to the mid-1980s. USAID's Office of Population, a major donor, was a strong proponent of this approach (Ravenholt and Gillespie 1976).

Soon many Asian governments launched major efforts to distribute oral contraceptives and condoms to households. Two prominent new outreach initiatives were community-based distribution and contraceptive social marketing. Community-based distribution programs recruit individuals in villages and neighborhoods to distribute nonprescription contraceptives. These agents are trained to screen for risk factors and store contraceptives in their homes until distributing them to households. Contraceptive social-marketing programs build on existing networks of local pharmacies, dispensaries, and village shops. Registered pharmacists and store owners purchase contraceptive supplies, in particular condoms, at subsidized prices and resell them to consumers for an average profit margin of 15 percent.

The expansion of family planning services beyond clinical distribution sites became a major program development and a rallying point for international donor agencies in the mid-1970s.

Table 7 traces the adoption of both strategies alongside conventional clinic delivery during this expansionist period. By the end of the 1970s, nearly every Asian government had an outreach strategy. In Bangladesh the strategy involved a community-based system, involving trained female workers who regularly visited households in rural districts to deliver injectable and oral contraceptives. During their visits they provided information and personal support to women with limited mobility (Phillips et al. 1988; Caldwell and Caldwell 1992). That strategy is widely regarded as being responsible for much of the country's success in family planning (Khuda and Barkat 1994).

Major programs of community social marketing are now under way in urban India, Indonesia, South Korea, the Philippines, Sri Lanka, and Thailand, serving large numbers of couples who seek methods for spacing births and are able to resupply themselves without medical consultation (Sherris et al., 1985; Shoen, Schellstede, and Derr 1987). These publicly financed and subsidized efforts have enabled family planning programs to meet rising contraceptive demand and extended effective contraceptive protection against unwanted fertility to millions of couples.

The pill and the IUD have been the most widely used contraceptive methods since the late 1960s, when they were first made available for broad public consumption. Over time the two methods' biochemical and physical properties have been refined to improve their levels of use-effectiveness and ease of use. Other methods—outpatient surgical contraception, male and female condoms, injectables, and subdermal implants—have similarly been improved to make them less dependent on medical personnel and clinical delivery and more accessible to women and men of reproductive age.

Despite concerted efforts to broaden couples' choices of contraceptive methods, the variety of methods available for use in Asia is likely to remain limited. Only a few new methods have been developed in recent years. Among them are subdermal implants, pregnancy-terminating pills such as RU-486, vaginal contraceptives, and antipregnancy vaccines. Chinese and Indian reproductive biologists are undertaking a significant proportion of the research on new contraceptive technology, although with limited success thus far.

Table 7 identifies the principal methods accepted by couples in key Asian countries. The prominence of sterilization (both female and male procedures) in China and India makes it the leading method, practiced by 48 percent of all Asian acceptors, or 151.6 million couples (Ross and Frankenberg 1993, table 2). Elsewhere in the region oral contraceptives have been the most

widely accepted method for decades; they are especially popular in Indonesia, Malaysia, Nepal, the Philippines, and Thailand. Discontinuation rates and imperfect use, however, have reduced the pill's effectiveness in preventing unwanted pregnancies. Because the IUD is widely used in China, it competes with the pill for second place as the most accepted method in the region. Recent evidence suggests that the injectable contraceptive, which is increasingly available and easily dispensed by mobile outreach units, has the potential to overtake oral contraceptives in popularity (Robey et al., 1992).

Table 7. Family planning service-delivery mechanisms, by decade of initiation and most accepted contraceptives: selected Asian countries

Country	1950s	1960s	1970s	1980s
China	Clinics, outreach			IUD, sterilization
Korea, South		Clinics, outreach IUD (early 1960s) Pill, sterilization (late 1960s)	CSM IUD, pill	Sterilization, IUD
Indonesia		Clinics IUD, pill	Outreach Pill, IUD	Pill, injectables
Malaysia		Clinics Pill, IUD (mid-1960s) Pill, sterilization (late 1960s)	Mobile clinics, outreach,CSM Pill, sterilization	Family development Pill
Myanmar[a]				Clinics, MCH (limited)
Philippines		Pill, IUD	Clinics, outreach, CSM Pill, IUD (early 1970s) IUD, sterilization (late 1970s)	Sterilization, pill
Thailand		IUD, sterilization	Clinics, mobile clinics, outreach, CSM Pill, IUD (early 1970s) Pill, sterilization (mid-1970s)	Pill, injectables
Vietnam			Clinics IUD	Outreach IUD
India	Clinics	Mobile clinics Sterilization, traditional methods (early 1960s) IUD, sterilization (mid-1960s) Sterilization, IUD (late 1960s)	Outreach, CSM Sterilization, IUD	Sterilization
Nepal		Clinics IUD, pill (mid-1960s) Pill, sterilization (late 1960s)	Outreach, CSM Pill, sterilization	Sterilization
Pakistan & Bangladesh		Clinics, outreach IUD, sterilization	Clinics, outreach (post-independence Bangladesh) IUD, pill	Community-based services (Bangladesh) Sterilization, pill, IUD
Sri Lanka		Clinics, mobile clinics, outreach IUD, sterilization (mid-1960s) IUD, pill (late 1960s)	Pill, IUD, sterilization (late 1970s)	Sterilization

Sources: Delivery mechanisms and decade of initiation, 1950s–70s: Cuca (1979, table 3); 1980s: Puri (1989, various pages). Most accepted contraceptives, 1950s–70s: Cuca (1979, table 4); 1980s: Ross et al. (1992, table 8).

Note: The first line of each country panel identifies the main delivery channel and the following lines identify the methods most accepted. Data for the 1980s reflect figures on method-specific contraceptive prevalence rather than number of acceptors. Reliable and consistent method-specific prevalence data are not available for many countries in earlier time periods.

CSM—contraceptive social marketing. IUD—intrauterine device. MCH—maternal and child health.

a. Data on methods are unavailable for Myanmar.

In sum, although international statistics on family planning program resources and organizational structure tend to be irregular and unstandardized, the emerging picture is consistent with policy goals established during the last three decades. The historical perspective suggests a policy environment increasingly conducive to family planning, steady growth in national and international resources to deliver and promote contraceptive services, and exploited opportunities for organizational experimentation that enabled family planning programs to manage challenging environments. Whether program effort played a role in the tremendous increase in contraceptive practice throughout most of the region is a question to which we turn next.

SERVICE PRODUCTION AND CONSUMPTION

Over the decades, the massive mobilization of personnel, capital, equipment, and supply resources, combined with a variety of outreach strategies, has delivered contraceptive information and services within reasonable proximity, and in some cases to the doorsteps, of Asian households. In tracing the evolution of Asian family planning programs in this half-century, the final step is to assess the acceptance of contraceptive methods, particularly those endorsed and provided by the programs. As we have seen, the rise in contraceptive adoption is due not solely to a coherent supply-side effort. Rather, it has emerged amid dynamic social, political, and economic changes affecting both individual and political will. To be sure, the context in which this has occurred, along with the rate of increased adoption, has varied from one country to another (for example, in Bangladesh versus Pakistan). Nevertheless, marked improvements in access to contraceptives undoubtedly facilitated the speed of the fertility transition in nations that experienced a significant fertility decline.

Table 8, which presents early and late estimates of contraceptive prevalence in 14 countries, indicates consumer response to family planning programs' services. From these estimates it is possible to derive the rate of change in modern contraceptive use (that is, use of methods involving supplies or clinic delivery) and in all contraceptive methods. In 1960, when South, East, and Southeast Asia had a combined population of 1,612 million, the total fertility rate was around 5.7 children per woman, suggesting that the contraceptive prevalence level was about 24 percent of married women of reproductive age. This inference, which may overestimate fertility regulation, implies that approximately 77.4 million couples were practicing some means of pregnancy avoidance.

A dramatic rise has occurred in the volume of contraceptive use of all methods in Asia over the past 35 years. Most—360 million—of the 387 million users—are using modern methods.

An estimate of the total number of contraceptive users in 1994 from regional estimates of contraceptive prevalence among reproductive-aged couples suggests a fivefold increase, or 387 million couples, since 1960. (Population-weighted averages of prevalence in the three subregions are from PRB 1994). Most—360 million—of the 387 million users—are using modern contraceptive methods. Indeed, a dramatic rise has occurred in the volume of contraceptive use of all methods in Asia over the past 35 years. The rise is evident in the contraceptive-prevalence trends shown in Figure 2 for selected East and South Asian countries.

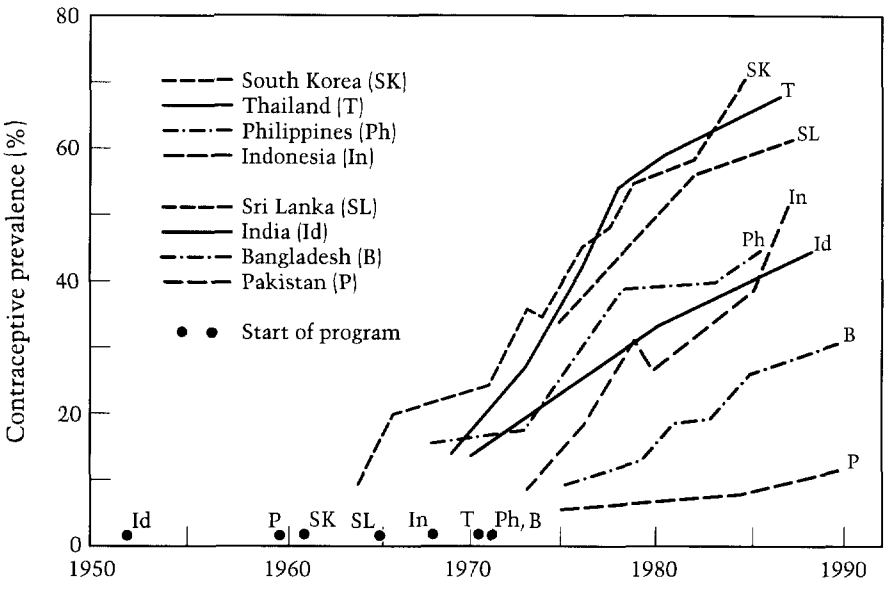
Additional evidence of service production and consumption levels can be garnered by comparing the rate of change in modern contraceptive use to the rate of change for all contraception. A high value for this ratio indicates that couples adopted clinical and supply methods more quickly than traditional ones, providing evidence that contraceptive services have had a dampening effect on fertility. By comparing columns 3 and 4 of Table 8, one sees that increased use of modern contraceptives contributed substantially to the upward trend in fertility limitation in countries with large populations and moderate to high fertility—for example, India, Indonesia, Bangladesh, Thailand, and Malaysia. In China, India, South Korea, Thailand, and Hong Kong the average annual rate of increase for modern methods exceeded that for all methods. In all other countries, the average annual increase in the modern contraceptive prevalence rate was more than half the rate for all methods.

The average annual increase in contraceptive prevalence (column 4) can also be used to estimate the number of years required for a country to reach a level of fertility (normally 2.1 children per woman) at which the population merely replaces itself. A rise of approximately 15 percentage points in contraceptive prevalence reduces the total fertility rate by 1 child, and contraceptive prevalence of 75 percent among couples of childbearing age generally results in replacement-level fertility. Two countries—Indonesia and Malaysia, with total fertility rates of 3.1 and 3.6 children

per woman, respectively—have the potential of reaching replacement-level rate during the 1990s. In Bangladesh, the total fertility rate may drop by one child per woman in this decade as well. Pakistan, the Philippines, India, and Nepal, on the other hand, will need between 14 and 38 years to reach replacement-level fertility if current trends in contraceptive prevalence remain unchanged.

The volume of contraceptive use has grown more dramatically than have prevalence levels. For example, in China the estimated annual number of users rose by 42.7 million over six years, while contraceptive prevalence remained nearly constant, at 72 percent. That is because the number of women in the reproductive age span was growing rapidly as a result of earlier high fertility. Similarly, the annual number of contraceptive users in India increased by 32.7 million over eight years, but during the same period the contraceptive preva-

Figure 2. Contraceptive prevalence trends: selected East and South Asian countries, recent decades



Source: Bulatao (1993, figures 2 and 4).

Note: Contraceptive prevalence is the percentage of couples of reproductive age who use contraceptives in a given year.

Table 8. Trends in contraceptive prevalence and annual number of users: selected Asian countries, recent periods

Subregion, country, and period	Contraceptive prevalence rate (%)		Average annual change (%)		Estimated number of users (in thousands)			Total fertility rate, 1990–95
	Early	Late	Clinic/supply method	Any method	Early year	Later year	Difference	
East Asia								
China (1982–88)	71	72	0.5	0.2	181,928	224,646	42,718	2.2
Hong Kong (1977–87)	72	81	1.1	0.9	843	1,292	449	1.4
Korea, South (1974–88)	37	77	3.1	2.9	3,232	9,325	6,093	1.8
Taiwan (1965–86)	23	75	u	2.5	u	4,119	u	1.7
Southeast Asia								
Indonesia (1976–87)	18	48	2.4	2.7	5,821	22,767	16,946	3.1
Malaysia (1974–84)	33	51	0.7	1.9	946	2,284	1,338	3.6
Philippines (1978–86)	38	44	0.6	0.9	4,121	6,765	2,644	3.9
Singapore (1973–82	60	74	u	1.6	359	589	230	1.8
Thailand (1978/79–87)	53	68	1.9	1.7	6,048	10,244	4,196	2.2
South Asia								
Bangladesh (1979–89)	12	31	1.6	2.0	2,220	8,134	5,914	4.7
India (1980–88)	34	43	1.5	1.1	54,327	86,997	32,670	3.8
Nepal (1976–86)	2	14	1.1	1.1	59	616	557	5.5
Pakistan (1975–90/91)	5	12	0.3	0.4	807	3,154	2,347	6.2
Sri Lanka (1975–87)	34	62	1.8	2.4	1,078	2,825	1,747	2.5

Sources: Contraceptive prevalence rates for Taiwan: Ross, Mauldin, and Miller (1993 table 8); for other coutries: Weinberger (1991, table 3). Total fertility rates: UN (1993b, table A.12); Taiwan: Republic of China (1994, table 73). Remaining data have been calculated by the author.

u—data are unavailable.

lence rate rose by only 9 percentage points, from 34 to 43 percent. Indonesia's contraceptive-prevalence level nearly tripled (rising from 18 to 48 percent) between 1976 and 1987, but over the same period the number of contraceptive users rose nearly four times, from 5.8 million to 22.8 million married women of reproductive age. Although more recent data are likely to reveal further gains in the number of contraceptive users, those countries that are still experiencing rapid population growth must work harder just to remain at current levels of contraceptive prevalence.

These figures in Table 8 suggest that national family planning efforts have achieved rising levels of service provision in recent years. Confirmation of actual levels would require service statistics on program acceptors during the period. Nevertheless, the data examined here make it possible to infer that in recent years Asian family planning programs have strengthened their capacity to produce contraceptive services at levels adequate to meet the needs of growing numbers of couples in the childbearing age span. This growth in service production and utilization is not usually appreciated because contraceptive prevalence levels do not take into account the absolute growth of the populations affected.

These gains in service provision also suggest that the programs have achieved cost efficiencies because their resources have not grown at the same rate as their services. Against the figures on contraceptive prevalence and service users, the growth in family planning personnel and facilities seems modest. In relation to the available data on these resource investments (expressed either as per capita expenditures on family planning or as a percentage of public health spending), the productivity of family planning programs appears quite cost-effective and efficient.

SUMMARY AND IMPLICATIONS FOR THE FUTURE

Over the past four to five decades the region encompassing East, South, and Southeast Asia has experienced a dramatic political, social, economic, and ideational transformation, which has increased the demand for smaller families. The forces of change sponsored policies that supported programmatic interventions to manage demographic growth and focused the goals of those interventions. Throughout the period, governments and international organizations have provided financial, material, personnel, and technological resources for publicly organized family planning efforts. Although those resources have reached significant levels of investment in some countries, overall they represent a small share of governments' budgets.

The structures of family planning programs have grown increasingly complex as programs have diversified their medical, clinic-based delivery systems to incorporate nonclinical, community-based, and social-marketing distribution. Through these changes, they have eliminated many medical and legal barriers to improved contraceptive technologies and increased the accessibility of their services.

The programs have served significant numbers of acceptors over time. In half a dozen countries with large populations in the reproductive age span (e.g., China, India, Indonesia, Bangladesh, Vietnam, and Thailand), the programs have had a significant reproductive impact. In smaller countries of the region (e.g., South Korea, Taiwan, Singapore, and Hong Kong), the programs have contributed to the reduction of fertility to replacement levels.

Not all Asian family planning programs have performed successfully as measured by levels of contraceptive use. Pakistan and Nepal, for example, still have low contraceptive prevalence. Nor have all Asian governments actively sponsored family planning activities within their borders. Among those with weak or nonexistent programs are Afghanistan, Cambodia, Burma, and Laos.

As organizations, family planning programs underwent substantial changes in output levels between 1950 and 1990, at a pace consistent with their ability to adjust to changing environments of contraceptive demand and resource supply. To what extent have they been responsible for observed increases in contraceptive prevalence and declines in fertility? It is not possible to answer this question easily with any precision, and attempts to do so have generally provoked debate. Longitudinal, or panel, measures of program resources and outcomes would be necessary across countries or areas within countries. Such time-series data on program resources are not available for all Asian countries and not routinely collected even during demographic surveys. The limited application of evaluation designs, such as randomized, controlled experiments, prevents the systematic assessment of programs' effects. These constraints exist in other regions as well.

Nevertheless, the weight of the evidence (e.g., Ross and Frankenberg, 1993) suggests that family planning programs have had an effect on contraceptive use and in turn on fertility levels. Trend analysis indicates that in almost no Asian country did contraceptive prevalence rise significantly before public policy began to support family planning services. The contraceptive methods practiced are heavily disposed toward the modern, effective methods provided through programs. Among Asian users the overwhelming source of contraceptive services is the public sector, which supplies on average 90 percent of contraceptors.

Moreover, fertility declines are larger than what might be expected in the absence of family planning programs. Bongaarts (1995) estimates that 43 percent of the observed fertility decline in the developing world between the early 1960s and late 1980s was the result of program intervention; a major share of that decline occurred in Asian countries. Bongaarts also provides compelling evidence that family planning programs throughout the developing world have prevented a significant percentage of unwanted births. In 1990 the number was 412 million; by 2000 it is projected to increase to 700 million. In view of these estimates, and the estimated economic savings on public schooling and health-care costs associated with reduced fertility, government investments in family planning programs appear to be quite cost-beneficial.

According to the organic model of organizations, family planning programs in most of the Pacific Rim countries have now progressed through the life-cycle stages of variation, selection, and retention, in which the external environment exercises control over the process of organizational change. Some national programs appear to be struggling in the retention stage—the stage at which an organization, in response to changing resource environments, retains elements that specifically facilitate its growth. In evolving to this stage, programs modify their objectives, either defining them more narrowly and prioritizing them to channel resources toward particular clients (e.g., adolescents, males, and new mothers) or broadening them by adopting related objectives (such as family welfare or reproductive health). Such an expansion of purpose generally broadens an organization's access to resource support as well.

An example of a national family planning organization that has broadened its objectives is the Korean Institute for Family Planning. An active technical and training unit for South Korea's family planning effort, the institute changed its mission in 1981, becoming the Korean Institute for Population and Health. In 1990 it became the Korean Institute for Health and Social Affairs. Today its activities focus on research and evaluation. Similarly, the Malaysian National Family Planning Board, established in 1966, was renamed the National Population and Family Development Board in 1984 and given a broader policy agenda that includes, among other concerns, population aging.

Such evolutions raise the question of how a family planning organization's successful achievement of purpose affects its future role in relation to national development and health planning. Are these changes simply characteristic of mature family planning programs? Or are they intentional adaptations to changing environments, reflecting the programs' successful management of their resource dependence? Models of organizational evolution are still ambiguous on this question (Champion 1975; Warriner 1984).

Evidence across the landscape of mature family planning programs suggests that over time their service-delivery functions tend to be fully reintegrated into the public health structure. In both South Korea and Malaysia, for example, the ministries of health have assumed responsibility for providing contraceptive services, primarily to low-income populations. Having relinquished that function, the national family planning programs now have either specialized tasks, such as research and evaluation, or broadened missions, for example policymaking and communication addressing a general population or development agenda. Thus, many mature family planning programs, having begun as a physician-directed response to unhealthful levels of reproduction and moved through a development and demographically oriented phase, are once again being reintegrated with national health-delivery systems.

Family planning programs occupy a permanent niche in the history of social engineering in Asia. The Asian experience is unique in several respects: the rapid pace with which family planning policymaking spread, governments' emphasis on a demographic rationale for mobilizing resources on behalf of fertility management, and the scale of the ensuing production and consumption of services. Moreover, Asian family planning programs have integrated themselves into health and development programs throughout the region, ensuring their access to public resources needed to sustain any future effort. Their success in doing this suggests that they are unlikely to depend heavily upon international donors for major resource assistance in future decades. Nor should one forget that the two most populous countries in the world—China and India—have relied primarily on their own resources to implement their family planning programs.

The Asian program experience probably offers other regions useful operational guidelines rather than success formulas. The context of social and economic reform in Asia differs vastly from that of, say, sub-Saharan Africa, despite the striking similarity between the demographic and development indicators of Asia in the 1950s and Africa in the 1990s. Political reform also has a shorter history in the sub-Saharan region than in Asia. Many African nations obtained self-rule only 30 years or so ago, and their family planning programs are still young.

The steadfast commitment of Asian political leaders to family planning, however, may be one critical reason for the success of their nations' programs. Several leaders have figured prominently in the family planning movement, either

as political spokespersons or as senior program administrators. Historical accounts reveal that they expressed uncertainty about the eventual success of their efforts, just as leaders elsewhere have today. Nevertheless, longstanding commitment to family planning gave Asian programs the political legitimacy, visibility, and stability needed to maintain the allocation of resources. It is difficult to imagine family planning programs succeeding without national leadership playing a catalytic role.

Another fact that should not be overlooked is that the desire to reduce rapid population growth, which was perceived as having adverse economic consequences, provided a central organizing principle for Asian family planning programs. Currently concern about improving the quality of family planning services and heightening programs' sensitivity to the reproductive-health needs of clients offers a different set of organizing principles. The difference is likely to lead programs to place less emphasis on numbers of acceptors and fertility reduction as goals and more emphasis on service quality—that is, meeting users' needs and preferences. This shift has significant implications for the restructuring of services, the reallocation of resources, and the redefinition of performance criteria. It comes, ironically, at a time when new evidence is emerging that high rates of population growth have negative effects on income growth, particularly in poor countries (Kelley and Schmidt 1994).

An intriguing question is whether the rapid economic expansion experienced in recent decades by many Asian countries would have been so robust without their historic commitment to family planning programs for the purpose of managing population growth. Regardless of the answer, the current political ambivalence toward the demographic rationale for family planning programs, vis-à-vis the rationale of improving reproductive health, will most likely distinguish the performance of future Asian family planning programs from those of the past.

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